

AMENDMENTS TO THE CLAIMS

This listing of claims will replace all prior versions and listings of claims in the application:

LISTING OF CLAIMS:

Claims 1-5 (canceled).

6. (previously presented): A cross polarization interference canceller comprising:

(a) first and second signal receivers which receive signals having been transmitted through first and second polarizations which are orthogonal;

(b) first and second local oscillators each of which converts one of said signals into an IF signal;

(c) first and second demodulators each of which demodulates said IF signal for producing a base-band signal and a cross polarization interference cancel reference signal;

(d) a phase-difference detector which detects a phase-difference between local signals transmitted from said first and second local oscillators, and transmits a phase-difference signal indicative of the thus detected phase-difference; and

(e) first and second phase controllers associated with said first and second demodulators, respectively, and each equalizing phases of said base-band signal and said cross polarization interference cancel reference signal to each other in accordance with said phase-difference signal;

wherein said phase-difference detector includes:

(d1) a multiplier which multiplies signals transmitted from said first and second local oscillators, by each other to thereby transmit a frequency-difference signal;

(d2) an analog-digital converter which converts said frequency-difference signal to a digital signal;

(d3) a numerical controlled oscillator which transmits a local phase-difference signal;

(d4) a phase comparator compares said local phase-difference signal and said frequency-difference signal to each other, and transmits a difference signal indicative of a difference between said local phase-difference signal and said frequency-difference signal; and

(d5) a filter which controls a frequency of said local phase-difference signal in accordance with said difference signal.

Claim 7-11 (canceled).

12. (original): A cross polarization interference canceller comprising:

(a) first and second signal receivers which receive signals having been transmitted through first and second polarizations which are orthogonal;

(b) first and second local oscillators each of which converts one of said signals into an IF signal;

(c) first and second demodulators each of which demodulates said IF signal for producing a base-band signal and a cross polarization interference cancel reference signal;

(d) a phase-difference detector which detects a phase-difference between local signals transmitted from said first and second local oscillators, and transmits a phase-difference signal indicative of the thus detected phase-difference;

(e) first and second phase controllers associated with said first and second demodulators, respectively, and each equalizing phases of said base-band signal and said cross polarization interference cancel reference signal to each other in accordance with said phase-difference signal; and

(f) a reference oscillator electrically connected to both said first and second local oscillators for synchronizing said first and second local oscillators with each other;

wherein said phase-difference detector includes:

(d1) a multiplier which multiplies signals transmitted from said first and second local oscillators, by each other to thereby transmit a frequency-difference signal;

(d2) an analog-digital converter which converts said frequency-difference signal to a digital signal;

(d3) a numerical controlled oscillator which transmits a local phase-difference signal;

(d4) a phase comparator compares said local phase-difference signal and said frequency-difference signal to each other, and transmits a difference signal indicative of a difference between said local phase-difference signal and said frequency-difference signal; and

(d5) a filter which controls a frequency of said local phase-difference signal in accordance with said difference signal.

Claims 13-16 (canceled).